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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,604	05/08/2002	Paul Eustace	31229-178457	9719

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EXAMINER
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BUTTNER, DAVID J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/049,604

Applicant(s)

EUSTACE ET AL.

Examiner

David Buttner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 70-107 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 70-107 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

The lined out references on the 1449 form are either not described in English or already of record.

Claim 75-70,83,96 and 97 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The diameter units " :m " are not understood.

Claims 70-85,87 and 89-107 rejected under 35 U.S.C. 103(a) as being unpatentable over the Griffith '434 Patent.

Griffith blends of PMMA with a cross linked acrylic particles. The acrylic particles can be combination of (meth)acrylic monomers (col 3 line 40). The amount of crosslinker is 0.5-15% (col 4 line 65). The ratio of monomers in the particle are not limited. Example 14 has a particle of 75% MMA and 25% ethyl acrylate. Any minor changes in monomer ratios would have benn within the ordinary skill in the art. The average size of the particle is typically 150 microns , although other sizes (column 5, line 30) can be used. The material is extruded through a strip die. In view of the fact, Griffith uses the same materials, amounts, sizes and mixing technique as applicant, one must assume the particles are also broken down in the reference.

Claims 70-85,87 and 89-107 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the GB 1197957 Patent.

The reference exemplifies (Nos. 6-15) blends of MMA/EA copolymer with cross-linked particles of MMA/EA. The particles have sizes of 50-200 microns (page 2, line

23). The amount of comonomer (the EA) in the particle can be 0-15% (page 1 line 57). The amount of crosslinker is 0.2-5% (page 1 line 60). The material is extruded into a sheet. In view of the fact, the reference uses the same materials, amounts, and sizes and mixing techniques as applicant, one must assume the particles are also broken down in the reference.

Claims 70-85,87 and 89-107 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the GB 2057466 Patent.

The reference exemplifies (Nos. 4 and 9) blends of PVC or Methacrylic resin with cross-linked particles of MMA/BA. The amount of crosslinker can be 0.5-5% (page 2 line 23). The particle size can be 40-200 microns (page 1, line 49). The blend can be extruded into plates (example 9). One must assume the particles are broken down in the reference because the applicant's materials, amounts, sizes and mixing techniques are used.

Claims 70-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Griffith '434 or GB 1197957 or GB 2057466 Patents in view of the Polymer Melt Rheology Text.

The previously cited references do not report a shear rate for their extrusions. The textbook explains the shear rate at an extrusion die can be as high as 100,000 s<sup>-1</sup>.

It would have been obvious to perform a typical extrusion when making the sheets of the references. A typical extrusion would expose the composition to a shear rate much higher than 100 s<sup>-1</sup> at the die.

Chemical Abstract 133:239303 is cited for its description of Acrypet MDK (used by GB 2057466).

Applicant's arguments filed 7/9/04 have been fully considered but they are not persuasive.

Applicant argues it would not have been obvious to select copolymers of MMA and alkyl (meth)acrylate from Griffith's list, employ a narrow amount (5-20%) of the alkyl (meth)acrylate and narrow amount of crosslinker.

This is not convincing. Griffith actually has an example (#14) of such a copolymer with the required amount of crosslinker and an amount of alkyl acrylate bordering on applicant's range. The issue is whether it is obvious to slightly lessen the amount alkyl acrylate. The other limitations are clearly met by the example. In view of the fact Griffith allows for any combination of alkyl (meth)acrylate monomers, one would have considered slight deviations from the weight ratios in any example to be *prima facie* obvious.

Applicant's comonomer is defined so broadly as to allow methyl methacrylate itself to qualify. Methyl methacrylate is an "alkyl methacrylate". In other words, Griffith's example 3 utilizing a particle of 99% MMA and 1% crosslinker literally meets applicant's claim. Arbitrarily one could say the particle has 89% MMA, 10% alkyl methacrylate and 1% crosslinker.

The 132 declaration actually predicts Griffith's example 14 to be superior to the compositions applicant is now limited to. The trends of figures 1 and 2 predict

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acceptable gloss and much better impact strength for Griffith's example of 25% comonomer.

Applicant argues GB'466 prefers larger (1.5-4%) amounts of crosslinker than now claimed (0.3-1%).

This is not convincing. The reference clearly teaches 0.5-5% crosslinker. One cannot ignore broader disclosure or nonpreferred embodiments when evaluating a reference (MPEP 2123).

Applicant argues GB'957 prefers lesser amounts of comonomer (3%) than now claimed (5-20%).

Again, applicant cannot ignore the broader teaching (0-15%) of the reference.

The 132 declaration is also deficient because such a showing must be commensurate in scope with the claims (MPEP 716.02(d)). Most of the claims allow for any thermoplastic (a). This is a vast range of widely divergent materials. The declaration is limited to MMA polymers as (a). Secondly, the comonomer in the particle (b) can be any alkyl acrylate or alkyl methacrylate. Those of ordinary skill recognize alkyl acrylates convey low T<sub>g</sub> rubbery properties. Conversely, alkyl methacrylates are typically higher T<sub>g</sub> hard monomers. A good showing for ethyl acrylate or butyl acrylate cannot be assumed to hold for butyl methacrylate.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Buttner whose telephone number is 571 272 1084. The examiner can generally be reached on weekdays from 10 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571 272 1302. The fax phone number for the organization where this application is assigned is (703) 872-9306.

DAVID J. BUTTNER  
PRIMARY EXAMINER

D. Buttner  
August 30, 2004

